

CLAIMS

1. A recording medium comprising:

a nonvolatile recording area for storing data;

5 an update notification part for updating update
information of the time of writing or erasing of data to
said recording area and holding said update information;

a host interface part for communicating with a data
processing apparatus; and

10 a controller for reading and writing data from and to
said recording area and supplying the data in said
recording area and said update information to said data
processing apparatus via said host interface part,

wherein update information in said update
15 notification part can be read from said data processing
apparatus and cannot be written by said data processing
apparatus.

2. The recording medium according to claim 1, wherein
20 update information in said update notification part is
updated immediately before the data in said recording area
is updated.

3. The recording medium according to claim 1,
25 comprising a medium-specific ID unique to each of said

recording medium.

4. The recording medium according to claim 1, wherein
a plurality of pairs of said recording areas are provided
5 and update information in said update notification part is
updated immediately before any of pairs of data of said
recording areas is updated.

5. The recording medium according to claim 1, wherein
10 a plurality of pairs of said recording areas and said
corresponding update notification parts are provided and
update information in each of said update notification
parts is updated immediately before data of said recording
area respectively corresponding to the update information
15 is updated.

6. The recording medium according to claim 5, wherein
a pair of a recording area which can be arbitrarily read
and written by said data processing apparatus and said
20 update notification part corresponding to the recording
area, and a pair of a recording area which can be read and
written when a specific authentication processing succeeds
and said update notification part corresponding to the
recording area are provided.

7. The recording medium according to claim 1, wherein update information in said update notification part is inserted into a response value corresponding to a command issued from said host device.

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8. The recording medium according to claim 1, wherein update information in said update notification part is updated only immediately before data of said recording area is first updated after initialization processing of said recording medium.

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9. The recording medium according to claim 1, wherein update information in said update notification part makes update to the arbitrary timing which the data processing apparatus specifies possible after initialization processing of said recording medium.

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10. The recording medium according to claim 1, wherein update information in said update notification part is updated each time write-protection of said recording area is canceled.

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11. The recording medium according to claim 1, wherein said recording area includes: a data storage area which stores one or more pieces of data; and a search

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information storage area which stores search information required when the data processing apparatus takes out each data stored in said data storage area, and

at least one of said data storage areas has a field
5 for storing update information in said update notification part.

12. The recording medium according to claim 1,
wherein said recording area includes: a data storage area
10 which stores one or more pieces of data; and a search information storage area which stores search information required when the data processing apparatus takes out each data stored in said data storage area, and

said search information storage area has the field
15 for storing update information in said update notification part immediately after said data is updated.

13. A data processing apparatus comprising:
a slot to which said recording medium is attached;
20 an input/output processor for performing input/output processing with said recording medium attached to the slot;
a data processor for reading data of said recording medium via said input/output processor and temporarily storing the data, and performing a data processing on the
25 basis of update information read from the said recording

medium in said update notification part when a recording medium includes a nonvolatile recording area for storing data, an update notification part for updating update information to said recording area at the time of writing or erasing of the data and holding said update information, a host interface part for communicating with a data processing apparatus, and a controller for reading and writing data from and to said recording area and supplying the data in said recording area and said update information to said data processing apparatus via said host interface part.

14. A data processing method, wherein a recording medium includes: a nonvolatile recording area for storing data; an update notification part for holding update information of data; and a controller for reading and writing data from and to said recording area and supplying the data in said recording area and said update information to a data processing apparatus,

and said data processing apparatus includes: a slot to which said recording medium is attached; and a data processor for reading data of said recording medium attached to said slot and temporarily storing the data and performing a data processing on the basis of update information read from said recording medium in said update

notification part, comprising the steps of:

making it possible for update information in said
update notification part to be read from said data
processing apparatus and impossible for update information
5 to be written by said data processing apparatus; and
updating said update information by said controller
at the time of writing or erasing of data to said recording
area.

10 15. The data processing method according to claim 14
comprising the steps of:

reading update information in said update
notification part and storing the update information in
said data processor after the data processing to said
15 recording medium is performed; and

determining whether or not data of said recording
area in said recording medium has been updated by reading
update information in said update notification part of said
recording medium and by determining whether or not the
20 update information corresponds to update information stored
in said data processor when the data processing to the
recording medium is started.

16. The data processing method according to claim 14
25 comprising the steps of:

reading update information in said update notification part and storing the update information in said data processor after write-protection to said recording medium is set,

- 5 determining whether or not a history that write-protection set in said recording medium has been canceled by reading update information in said update notification part of said recording medium and determining whether or not the update information corresponds to update
- 10 information stored in said data processor exists when the data processing to the recording medium is started.

17. The data processing method according to claim 14 comprising the step of:

- 15 determining whether or not data of said recording area in said recording medium has been updated after said data was recorded by determining whether or not update information of field in the recording area read from said recording medium corresponds to update information in said
- 20 update notification part read from said recording medium.

18. The data processing method according to claim 14 comprising the step of:

- conforming value of said field immediately after
- 25 writing to said field to value of said update notification

part, when data is written to said recording medium, by
reading update information in said update notification part
after writing the whole of said data, and by calculating
and recording update information immediately after writing
5 in field in the recording area which stores the update
information in said update notification part.

19. The data processing method according to claim 14
comprising the steps of:

10 comparing update information in said update
notification part before reading of data from said
recording medium to update information in said update
notification part after reading of data;

confirming whether or not above both update
15 informations correspond to each other; and

continuing processing in the case of correspondence,
and if not in the case of correspondence, performing an
error processing or retry processing.

20 20. The data processing method according to claim 14
comprising the steps of:

comparing update information in said update
notification part before writing of data from said
recording medium to update information in said update
25 notification part after writing of data;

confirming whether or not above both update
information correspond to each other; and

performing error processing or retry processing in
the case of correspondence, and if not in the case of
5 correspondence, continuing processing.